Chapter 5

The Emergence and Evolution of Chinese Business Groups: Are Pyramidal Groups Forming?

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1. INTRODUCTION

Great academic interest has been shown in business groups (Morck and Nakamura, 2007; Morck, Wolfenson and Young 2005; Yiu et al 2005; Keister 2000). A recent summary of the business group literature, capturing a fundamental question, asks whether they are 'paragons' or 'parasites' (Khanna and Yafeh, 2007). Of special relevance regarding their negative parasitic impacts, in particular, are pyramidal ownership structures. These have been singled out for their negative impacts in East Asian economies, where business groups play a prominent role (Morck et al 2005). Despite this, to date there has been comparatively little research on the extent to which China's business groups have evolved pyramidal type structures. Business groups, however, now occupy an increasingly important space in China's state capitalist system, so this has become an important question. By 2006, for example, there were 2,856 officially recognized Chinese business groups which held 27,950 first-tier subsidiaries. They employed around 30 million people directly and had been growing at a phenomenal pace along many dimensions (SSB, 2007). [1] Beneath this first-tier of firms, for example, many further tiers of participating firms that were not recorded in official statistics

[1] Much business group data in this study is taken from official Chinese statistics. Thisofficial definition of the business group includes all groups with sales and assets of over 500 million Rmb, all central, State Council trial groups and provincially approved groups. Subsidiary firms are considered business group members in these official data if over 50% of their equity is owned by the parent company (*mu gongsi, literally 'mother company'*). A more general definition of the business is that of collections of independent firms linked by both

also existed. As such, the influence and reach of China's business groups is of great current and future importance.

The main purpose of this chapter is to examine the role of business groups in China's state capitalist system, with a particular emphasis on the role of pyramidal ownership structures within state controlled business groups. We also consider the reasons for why pyramidal groups may be forming and the possible consequences of this on-going development. In Section 2 we explain what pyramidal business group are and provide a background summary and review relevant research on the limited work that exists on China's pyramidal groups. From this we further develop more specific research questions, outlined in Section 3. Section 4 summarizes the different approaches and methods we use. Section 5, following from this, reports our results. We find that some groups have indeed developed pyramidal structures, and that their formation is most likely driven by the interests of managers. But ultimately, the opacity of large enterprise groups may undermine the party-state's broader objectives in building globally competitive firms.

2. BACKGROUND AND LITERATURE REVIEW

We briefly consider literature on business groups and pyramids in general and then more specifically about what we already know about pyramidal structures in China's groups.

2.1 Pyramidal business groups

The extensive business group literature has asked whether business groups should be considered 'paragons' or 'parasites' (Khanna and Yafeh, 2007; Carney, 2008). Under certain

formal and informal ties, usually also with a tendency to operate in numerous industries (Khanna and Yafeh,

market and institutional conditions, for example, it is argued that business groups may provide benefits for affiliated group member firms. Group formation in particular may help address missing markets and 'institutional voids' that are common in emerging markets and transition economies. Under developed or missing markets in finance, labor, and products, for example, can all be substituted for by business groups, which can facilitate exchanges that otherwise would not take place. As such, they can play a positive role in reducing firm transaction costs. Importantly, though far less discussed in much of the literature, business groups also can play vital roles in technology acquisition, particularly via their expertise in acquiring and assimilating existing technologies from international technology markets (Amsden and Hikino, 1994).

There may, however, also be a range of negative features that potentially may incur costs and inefficiencies that are also associated with business groups. These include those related to their monopoly powers, engagement in rent-seeking activities and association with crony capitalism, moral hazard and excessive and inefficient investment. One of the most discussed negative traits, moreover, concerns the negative impacts such pyramidal structures may have on the corporate governance of the publicly listed companies within these groups (La Porta et al, 1999; Morck et al 2005). Such 'control pyramids' allow a firm (often family or state owned) to control several publicly listed companies, each of which may in turn control yet more listed companies, and so on. Under such conditions an apex firm may come to control numerous other firms. Critically, it does so without making commensurate capital investments. Morck and Nakamura (2005) provide a hypothetical example in which the first tier listed firm is 49% financed by outside shareholders and 51% by a single controlling shareholder. In lower tiers a similar relationship holds, so as we move down the tiers of the

2007: 331).

pyramid at each new tier new firms will be increasingly financed by outside shareholders, while control still lies at the apex firm. So in the second tier 74% of the firms are financed by outside shareholders and in the third this rises to 85.25%. If lower ownership shares are required to lock-in control, which could be as low as 10%, external shareholders can rapidly be responsible for financing pyramidal business group expansion. In these situations it is argued that 'apex firm value maximization is unlikely to coincide with shareholder value maximization in any individual lower tier firm' (Morck and Nakamura, 2007: 40). In fact, controlling shareholders are likely to want to move resources via from lower tiers to higher tiers in the pyramid, often via related party transactions between associated firms in a group in a process sometimes referred to as 'tunneling'. Pyramidal type ownership structures in business groups, therefore, have the potential to destroy value and undermine the interests of minority shareholders. They have become a subject of considerable academic interest (see Carney (2008) for a summary of this literature).

Why do pyramidal groups form and are they common throughout the world? While cross-shareholdings and super voting rights may also be used to bolster the control power of the apex, La Porta et al (1999) find pyramidal structures are generally the most common mechanism of increasing divergences between ownership and control. Clearly, such structures may provide rich pickings for ultimate controlling shareholders. Historically, as it happens, state actors and powerful families have been among the elites using such ownership structures to harness enormous economic influence over vast corporate empires. As a direct result of the large divergences between control and ownership these elites have also required only relatively limited supplies of capital to expand their power bases. Because at each level new corporate entities are formed with limited liabilities, moreover, controlling elites are shielded from heavy losses should one or more firms in their pyramids fail. These complex

corporate structures may also be used to minimize tax bills (Morck 2007). Unsurprisingly, such pyramidal structures have proved popular among their elite owners and are common throughout the world. In fact, widely held firms according to La Porta et al (1999), may be thought of as the 'the rarest of curiosities' in most countries, with the exception of the United Kingdom and United States. [2] Pyramidal ownership structures, therefore, are dominant throughout nations, with the exceptions of these two countries.

The pyramidal ownership structure is also highly germane to Chinese business groups and the current evolution in the way corporations are owned and controlled in China. This is because business groups have also become important actors in enterprise ownership reforms. At a national level, the 3,000 or so powerful parent companies (also known as 'group companies') have now assumed ownership and control of many subsidiary firms, currently around 30,000. Typically, these first-tier subsidiaries have also gone on to acquire their own subsidiaries, which in turn have also acquired further subsidiaries. This process, when repeated, has led to the build-up of long vertical ownership chains. As corporatization has ensued in recent times, moreover, and stock markets have grown, publicly listed corporations have become ever more involved in these chains. This has given rise to opportunities for the development of pyramidal type structures, both in the strict aforementioned sense envisaged by La Porta *et al* (1999) involving publicly listed companies, as well as in a less strict sense, involving non-listed companies. Given the already poor track record of corporate governance in many listed firms and the strong position of business and party insiders within groups, the development of pyramidal structures may herald a further deterioration in corporate

[2] Even in both these nations, however, pyramidal groups were also once common and it was only active policies to discourage them that led to their decline. Thus it has been argued that by the mid 1920s large pyramidal

governance and the rights of minority shareholders. Indeed, the development of pyramids may even be seen as a continuation and extension of the original listing program. As described in the chapters by Doug Guthrie, Zhixing Xiao, and Junmin Wang, Barry Naughton, and Margaret Pearson, thus far the listing process has heavily favored the state and its representatives as the controlling shareholders. Pyramidal structures, therefore, may simply increase the efficiency with which the risk of business group expansion is socialized and passed on to the general public as investors in listed companies.

What are the broader economic impacts of such ownership structures? If large segments of an economy are controlled in this way, some argue corporate governance problems can even attain macroeconomic importance. These in turn could affect rates of innovation, economy wide resource allocation, and economic growth. This has been referred to as 'economic entrenchment'and occurs as a result of the political influence of these entrenched elites:

> If political influence depends on what one controls, rather than what one owns, the controlling owners of pyramids have greatly amplified political influence relative to their actual wealth. This influence can distort public policy regarding property rights protection, capital markets, and other institutions. We denote this phenomenon economic entrenchment, and posit a relationship between the distribution of corporate control and institutional development that generates and preserves economic entrenchment as one possible equilibrium.
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> (Morck, Wolfenzon and Yeung 2005: 655).

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corporate groups 'were probably the dominant form of large organization throughout the world', (Morck, 2007:16).

In summary, much recent discussion of business groups has focused on the question of whether they may be seen as paragons or parasites (Khanna and Yafeh, 2007). Their parasitical tendencies, in particular, are related to their propensity to form pyramidal structures. Pyramidal groups may vastly inflate the power of their controlling elites which may in turn have economy wide ramifications. As La Porta et al (1999) have noted, if pyramidal structures are common and widely held ownership scarce, the Berle and Means (1932) image of the modern corporation, with diffuse owners attempting to control managers, may need replacing. Instead, a key question becomes: who keeps controlling shareholders from expropriating minority shareholders? This, of course, may be especially pertinent in a country such as China, where there is comparatively little legal protection and also a legacy of controlling ownership stakes held by the state and its representatives. The corporate governance record of publicly listed firms in China, moreover, does not have a good record to date. The formation of pyramidal structures, which increases differences between cash-flow rights and control rights, may therefore hold the potential to further undermine the rights of minority shareholders and further strengthen the position of the state and other insiders within groups. The question of whether these types of pyramidal structures are forming, therefore, is an important one.

2.2 Pyramidal ownership structures and Chinese business groups

As other contributions to this volume have emphasized (Morris Bian, Doug Guthrie et. al, Barry Naughton, and Margaret Pearson), from early on in the reform process there was a pressing need to reorganize large state-owned enterprises. State industry suffered from an

excessive degree of vertical integration, lack of scale and close affiliations to different regional and ministerial authorities. Given the undeveloped market for property rights and lack of clarity regarding actual ownership at this time, as well as complex bureaucratic structures involving numerous levels of government, powerful state-owned firms faced many problems expanding their operations. Under these conditions an incremental process, involving bottom-up iterative change started to emerge, with large state enterprises lobbying for greater freedoms and powers regarding their expansion. In response to these demands, and in recognition of their importance, a number of trials were put in place by top policy-makers. As early as 1986 a small number of pioneering enterprises were involved in trials developing further economic linkages with other enterprises. These trials with these prototype groups were successful so that by 1991, as linkages continued to grow and a clearer strategic direction emerged, a total of 57 large groups were approved by the State Council in a landmark policy. They were given trial status and encouraged to become "investment centres," so encouraging their ties with other enterprises (Sutherland, 2003). According to the 1991 directive, these groups were to 'use capital as the bonds' between the member firms.

With the success of the 1991 trial a further State Council policy directive added another 63 groups to the trials in 1997. It also introduced and encouraged a new range of features to the groups, including such things as internal research and development centers and finance companies, mirroring features seen in other countries. This later policy document also called for a scaling-up of the efforts and for the groups to also focus on achieving international competitiveness. This was to be done through, among other things, continued investments in technology, greater scale, improvements in management and the clarification of property rights within the groups, as well as better coordination between member firms. At the same time, reforms to corporate governance were to be introduced, based around the newly

introduced ‘modern corporate system’. Member firms within the groups, importantly for the purposes of this investigation of pyramids, were also given priority in public listings so that they could grow in scale quickly. A wide range of measures, therefore, have been taken to encourage the formation of business groups, which have now become a common organizational form. One theme running through these policies is that these groups should grow in size and play a central role at the heart of the Chinese economy, as well as eventually become leading transnational corporations. As later sections show, pyramidal ownership structures may be one means of achieving these goals.

In China’s officially recognized groups, assets and sales have grown at around 20% per annum in real terms over the period in question – much faster than the national economy as a whole (Table 5.1). Profits have also increased substantially, rising from the equivalent of about 1.5% of GDP in 1997 to closer to 7.5% by 2006. Various lower tiers of government have also followed the lead of the central government and powerful provincial and city level groups have also emerged. Around 1,212 private groups were also recognized in 2007, accounting for around 10% of all business group assets and 15% of sales (SSB, 2008). Interestingly, prior to 2006 no such private ownership category existed. A considerable concentration of power, however, still resides in the small number of very large, predominantly state-owned groups, selected for the aforementioned trials. In fact, around half of all assets, sales, R&D expenditures and profits were concentrated in this batch of 100 or so trial groups alone. These, therefore, were among the largest groups in China. They are also the same firms that comprise what Pearson calls the top tier of China’s state capitalist economic structure. Interestingly, the largest state-owned groups also played a disproportionate role in R&D expenditures (contributing about 40% of the national total for

all groups), which as a whole have grown at a staggering 40% or so each year over the past decade. On top of this, the state-owned trial groups contribute significant volumes to China's outward foreign direct investment, in keeping with one of their stated purposes of becoming China's leading TNCs. By 2007 these trial groups alone were responsible for around 35% of Chinese outward direct investment (if outward investment to tax havens is taken into account this figure rises considerably, see Table 5.1 and also Sutherland 2009). The global financial crisis of the late 2000s has now also led to a significant increase in the size of Chinese groups, at least as measured in simple financial measures, when compared to their global counterparts. The profits of the trial groups stood at around 2% of the largest 100 *Fortune 500* corporations in 1997. By 2007, however, this had increased to around 35%, in part owing to the *Fortune 500*'s record fall in profits (Sutherland and Yao, 2009). As firms continue to be folded into these groups and the policy of 'grasping the large' continues, they are likely to continue to grow.

The rapid growth of business groups is a core feature of state capitalism in China, and raises numerous interesting questions for academic research. A large number of papers have employed quantitative approaches to examine, among other things, whether and under what conditions companies may benefit from group membership in China and more generally what groups can do to affect performance. Keister (1998, 2000), for example, examines the performance of 40 of China's largest groups between 1988 and 1990 using a panel data set. She finds that internal finance companies (facilitating internal financial markets) and interlocking directorates (which promote information exchange between group members) are associated with improved performance. Yiu et al. (2005) examine the profitability of 224 business groups (including all subsidiaries) with another purpose in mind. They wish to find out how groups acquire resources and capabilities so that they can become successful agents

in promoting economic transformation and growth. They find that group profitability is negatively related to what they call 'endowed resources' (including such things as the age of the group, the extent of government ownership and the prevalence of management with government links) but positively related to what they call 'acquired resources'. Such resources, they argue, are acquired through actions such as acquisitions, internal capability development and international diversification (Yiu et al 2005). Ma et al (2006), on the other hand, look to examine how business groups fill 'ownership voids' by serving as the direct owners of state-owned enterprises in the absence of other private actors. They find that the combination of business group affiliation and state ownership has a positive effect on subsidiary performance. Moreover,by substituting for imperfect markets, they may also play an important role in ownership reforms, a point to which we later return. Sutherland and Guest (2008) use a large panel data set of China's listed firms and identify listed subsidiaries of the preferred national team trial groups (those referred to in Table 5.1) to examine their financial performance *vis a vis* non trial group subsidiaries.

To date a lot of research on Chinese business groups has focused on how groups may or may not affect performance using quantitative methods and samples from China's listed companies. As with all studies of this type, there are challenges in undertaking meaningful econometric estimations. Keister's (2000) early study, for example, while very thorough, relegates the question of causality in her estimations to a single footnote. She therefore attributes the good performance of groups to internal institutional features (finance companies and so on) as opposed to the better groups being selected to form such institutions (i.e. the direction of causality may be reversed). Many of the other quantitative papers suffer from similar problems, which are often overlooked. Here we address a slightly different question but one that we believe to be of fundamental importance: are pyramidal groups

forming in China and if so, why? Given their prevalence in other countries, and apparent centrality in precipitating economic crises, this seems an important question.

2.2.1 Pyramidal control structures in China

Given the rapid growth of groups and the increasingly complex inter-relations between firms, the question of whether pyramidal structures are emerging in China has become of greater relevance. There are, however, surprisingly few such studies, despite the considerable general interest in 'tunnelling' and related party transactions (hereafter RPTs) shown by scholars of corporate governance and finance .

The only work we can find that explicitly explores Chinese pyramidal groups is Fan et al's (2012) article titled 'Institutions and Organizational Structure: The Case of State-Owned Corporate Pyramids'. Fan et al. (2012) also take a novel and contrarian viewpoint, in so far as they are largely optimistic about the possible role that state-owned pyramidal ownership structures may perform in China (and elsewhere), which contrasts with the 'parasitic' viewpoint of pyramids typically held by many. Indeed, their quantitative analysis indicates 'a positive role' (Fan et al. 2012: 28) for such structures. They argue specifically that they are potentially a way of reducing state intervention by insulating managers from interference (and what they call 'political costs'). While they also accept that in the process of creating further ownership layers, pyramids may also create 'agency problems' (i.e. difficulties with monitoring activities of managers), in some instances the costs of such agency problems are less severe than those that might be incurred by the political costs of interference. These costs are related to government officials pursuing their own political objectives at the expense of outside shareholders (i.e. forcing the fihe to build public infrastructure, pay greater taxes,

employment and the likes)(Fan et al. 2012: 6). In other words, it is an optimal solution in the given context of state ownership (and lack of possible alternatives, i.e. outright privatization). They argue:

> All else equal, the optimal division of power between the government and the managers should be the point at which the marginal agency costs are equal to the marginal political costs. Our empirical results, based on hand-collected data for 742 local government- owned Chinese business groups are generally in line with this hypothesis.
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> (Fan et al. 2012: 1).

They conjecture that organizational pyramids give governments 'more credibility in committing to non intervention than simply a policy prescription that calls for increased delegation of decision rights to managers of SOEs'. This, they argue, is because the complex organizational structure 'increases the government's cost of obtaining sufficiently timely information to interfere in the day-to-day operations of the firm' (Fan et al. 2012: 2). They go on to point out that: 'ironically, one advantage of an extensive vertical pyramid is that it is highly bureaucratic, making information transmission ineffective—an important condition for decentralization…. Thus, a pyramid structure can be adopted as a credible mechanism to reduce government intervention' (Fan et al. 2012: 6). They therefore hypothesize that the 'extensiveness of SOE pyramids is positively associated with local governments' incentives to reduce their interference' (and resulting 'political costs').

Despite the interesting argument put forward by Fan et al. (2012), we do have several reservations with their arguments and method. Firstly, their sample is taken from 742 post IPO ownership chains of listed businesses that are majority owned by local governments in the period before 2001. As a result of focusing on IPOs these chains are necessarily likely to

be rather short, as it usually takes some time for complex layers of ownership to grow and for fully developed pyramidal structures to evolve. Looking at business groups at a point of time, as a snapshot in their early stages of development, is unlikely to give an accurate representation of how or why pyramidal ownership structures evolve. Also their assertion that 'state owners almost always possess 100% of the equity ownership of a pyramid's firms, which precludes equity financing from serving as the primary reason for a pyramidal structure' (Fan et al. 2012: 2) may have been true of the sample they look at, but it is certainly not so today (with the non-tradable share reforms now implemented). As such, we believe that while their study is looking at reasons for ownership chains, it does not so much look at 'pyramids' as they are most commonly understood. Implicit in much of the literature is that pyramids do require divergences between cash-flow rights and control rights. In their sample this divergence is not yet identified, with a mean ratio of cash flow rights to voting rights of 0.97.' (Fan et al. 2012: 13). Again, we find far greater divergences looking at more recent examples of Chinese pyramids.

Secondly, their argument assumes policy-makers (the 'government', as per above) are economically rational, in the sense they are motivated to optimize the economic value of state assets for society at large, and not themselves. Is this realistic? Government officials may, of course, have an interest in the economic performance of the businesses under their control. But this may be only one of their concerns. They may also see these businesses as part of their personal fiefdoms, from which they too expect to personally benefit. So while performance will be a concern, maximising their own individual benefits in the process of their reform may also be of interest to them. If this is so, the agency costs of creating complex and opaque ownership structures, with multiple channels for related party transactions, will potentially be very high. The case of Shanghai Electric Group, one of China's largest regional

business groups (controlled by Shanghai SASAC and one of the largest state owned group in Shanghai), which we discuss in greater detail later, is a very good case in point. Insiders, (including disgraced former Shanghai mayor, Chen Liangyu) were convicted for siphoning off vast sums from the pyramidal group.

Thirdly, they argue state-owned pyramids are a way of insulating managers from state interference. But if this argument is true, it is not clear why private business groups in China, such as Fosun Group, would also be building up similar types of pyramidal ownership chains (Sutherland, Ning and Wang, 2012). Such private groups would not, presumably, suffer from the same types of 'political costs' of intervention. In such cases, equity financing looks like a more plausible explanation. The plethora of work on RPTs in Chinese listed companies, moreover, also supports the idea that tunnelling from listed companies is a very common phenomenon, again suggesting that equity financing may be an important reason for pyramids.

Pyramids, according this LaPorta et al (1999) in their definition, may occur only if there is 'at least one publicly traded company between it and the ultimate owner in the chain .... *Pyramids require publicly traded intermediate companies*' (La Porta et al 1999: 480). This condition means that large numbers of public investors may participate via equity holdings in firms, over which they have little actual control, thus creating divergences between ownership and control needed to create the conditions that may allow tunnelling from these investors. Fan et al (2005) use a slightly different understanding of pyramids to that of La Porta et al (1999), in so far as they do not specify that the companies within the ownership chains have to be listed. While conceptually pyramid ownership structures that create divergences between cash-flow and control rights may also exist without publicly listed companies, and indeed these types may be far more common in China than the type that

LaPorta et al. (1999) discuss, such pyramids are less likely to involve as many diffuse, small shareholders. As such, investors involved in these types of pyramids may hold more concentrated shareholdings and may well exercise greater monitoring powers and say in the management of such businesses. Such firms, moreover, are generally smaller than listed companies. Our later sections therefore focus specifically on the role of listed firms in China's groups. Our further reason for doing this is that, similar to that of LaPorta et al. (1999) in their original study, it is only these companies that provide adequate information and transparency to meaningfully study the issue at hand. Future research should certainly try to further explore pyramidal structures involving unlisted companies.

2.3 Research questions

China's corporatisation and listing programme have already created well publicised issues for minority shareholders. To date, however, there is limited research on the extent to which China's large groups have developed pyramidal features and what the impacts of these are. As Khanna and Yafeh (2007) also point out, despite concern over pyramidal groups, there is still a paucity of information on their actual numbers and whereabouts. So this is our primary empirical question. Secondly, based on our different samples we also consider why pyramids might be forming in China. Of particular interest and relevance to this question, we believe, concerns where actual control lies within the groups and who or what stands to benefit from such ownership structures. Such an analysis thus provides a more detailed and nuanced perspective on understanding how state capitalism operates in China.

3. METHOD: AGGREGATE BUSINESS GROUP DATA AND CASE STUDY EXAMPLES

We use five main approaches to answer these questions. Firstly, we use aggregate data on firm level subsidiary registrations in Chinese business groups as reported in official yearbooks. The second, third and fourth approaches, by contrast, undertake detailed investigation of individual firms and groups and the fifth undertakes event study analysis of listed firms held in pyramids that undertake RPTs with other group members, so as to ascertain the impacts of RPTs on share prices.

3.1 Aggregate data: what types of firms are affiliated to groups?

Firstly, to start our investigation we wish to ascertain whether China's groups contain listed companies, and, if so, whether such companies are gaining in overall size and importance within the groups. One way to do this is to examine the extent to which shareholding companies (*gufen gongsi*) have expanded in aggregate within the groups. These types of companies may be publicly listed (although they not necessarily are). Generally, we address the related question of how ownership is evolving within China's large groups by examining aggregate data of the types of companies involved in China's 2,800 or so business groups. Are more private firms becoming involved, what types of corporate forms are most important? There is still very little information on the constituent members of China's business groups. Examining these questions helps to reveal potential corporate governance issues these groups may face, particularly given the large number of management buyouts and de facto privatizations that are reported to have occurred in recent years (Naughton 2007: 320; Lee and Hahn 2004).

To this end we firstly investigate the types of firms by ownership and registration criteria that are members of China's large business groups. We use reported data from the official large business group yearbooks using cross-sections from the period 2002-2006 on China's 2,800 or so groups. Specifically, we investigate how many subsidiary companies China's large groups possess, their registration types and the possible contribution of different ownership categories over time using a variety of different indicators (total assets and profits, for the sake of simplicity, see Table 5.2). This approach provides us with a general overview of the ownership composition of subsidiaries among China's groups as a whole. Most importantly, for the purpose of this study, it allows us to ascertain whether there is any evidence that listed companies (stock holding) are becoming more important within China's groups. It also allows us to see whether business groups are growing as a result of the contribution of subsidiary growth and what types of subsidiaries are becoming more important (limited liability companies or state owned companies, for example).

3.2 Case study evidence

3.2.1. The largest listed companies

La Porta et al (1999) in their seminal study of ownership and control use data on the ownership structures of large corporations in 27 wealthy economies and look to identify the ultimate controlling shareholders of these firms. They examine, among other things, the top 20 firms ranked by market capitalization of common equity at the end of 1995. They exclude financial organizations. They look for all shareholders who control more than 10 percent of

the votes. Often the main shareholders are corporate entities and financial institutions. In such cases they try to find the major shareholders in these entities, then the major shareholders in the major shareholders, and so on, tracking up the chain of ownership until they find the "ultimate controllers of the votes." We also used this approach, looking at the 20 largest listed firms on China's stock markets (at the end of 2006). The logic here is that pyramidal groups, by definition, must include listed firms, so by examining the ownership structure of a sample of listed firms we can gain insights into the extent to which such firms are owned by other listed firms, and by extension whether pyramidal groups exist.

3.2.2 The largest shareholding companies and their groups

Unfortunately, there are a number of difficulties with using the two aforementioned approaches, which will be discussed shortly. Further detailed investigation of individual business groups and the individual firms within these groups is therefore needed if we wish to identify pyramidal groups and gain insights into their nature. To do this, therefore, we select two further samples of business groups from among China's top 1,000 groups (as listed in the 2006 Large Enterprise Group Yearbook). In a preliminary sample we identify groups listed as "shareholding companies" (*gufen gongsi*) from among the top 1000 groups in China (by assets). The logic of this approach is that such firms may be listed and therefore may have a higher probability of containing pyramidal chains. By looking at this sample it may provide some indications of whether pyramidal groups exist. We therefore identify such companies and undertake detailed investigation of the larger groups of which they are part.

3.2.3 Investigating the 50 largest business groups

We also look at the 50 largest groups in China (as listed by asset size). Given the bias in the listing procedure towards larger, key state-owned firms and the sheer size of these groups, there would appear to be more likelihood of pyramidal structures in these groups. For each business group we identify member firms using company web sites and annual reports. In a few instances we found little or no information. For the most part, however, identifying listed firms within these groups was not problematic. For each listed firm, moreover, we went on to scrutinize their available annual reports. Such annual reports generally provide detailed information on both the controlling shareholders and major subsidiaries and associates of the listed firm and whether they are also listed or not. We look to see if these are listed or if they in turn hold shares in other listed firms, creating pyramids. As many of China's largest groups have firms listed overseas, in particular in Hong Kong, there is now a surprisingly large volume of information available on the corporate structures of many groups (see Figures 5.1, 5.2 and 5.3 for some examples, which we describe in more detail later).[3]According to La Porta et al (1999) ownership stakes exceeding fifty percent in lower tier firms are not necessary to lock-in control in most cases. As most small shareholders do not vote at annual meetings, they argue voting stakes in the *ten to twenty percent range* area dequate to lock in control.In our study we also look for subsidiaries in which the 10% or more ownership is directly or indirectly held (though in nearly all cases we report it is far higher than this) and note these (Table 5.3). From these annual reports, we identify whether long term holdings in other firms are held, directly or indirectly. Table 5.3 names the firms we identified as being involved in the pyramidal ownership chains. While the above procedure is time consuming, it affords us the advantage of providing detailed insights into the structures of China's most important groups as well as why they are forming.

[3] As well as this, a surprising amount of information on 'related transactions' also exists in annual reports, so providing some idea of the potential scope for tunnelling activities.

3.3 Event study analysis

Our final approach, which we explain in more detail in section5.3, builds from questions that are raised in our earlier analysis and looks at the impact of related party transactions (hereafter RPTs) on the share prices of listed firms held in pyramidal ownership chains.

4. RESULTS: ARE THERE PYRAMIDS?

We firstly present the aggregate data and then go on to look at case studies of the large groups in China.

4.1 Firm types participating within China's business groups

Our initial focus is on the composition by ownership of China's 2,856 officially recognized business groups and 27,950 first-tier subsidiaries and how it has changed (in the period 2002 to 2006, for which we have data, Table 5.2). Firstly, we note that the number and type of firms participating within China's business groups has grown quickly. The total number of first-tier subsidiaries increased from 24,523 to 27,950 (from about 10 to 11 first-tier subsidiaries per group on average) and their share of group assets increased from 56% to 66% between 2002 and 2006. The type of subsidiaries according to their registration has also changed greatly (Table 5.1). By the end of 2006 four types of companies were of greatest importance to the groups: SOEs, solely (100%) state-owned limited liability companies, limited liability companies and the larger shareholding (limited liability) companies, of special relevance to pyramids.

By 2006 the most important type of subsidiary, in terms of numbers, was the limited liability company. The number and share of such companies had increased rapidly, from 9,060 (33%) to 14,011 (45%) of a total 27,950 subsidiaries. Limited liability companies are typically much smaller than shareholding companies and were a product of the 1994 company law.[4] As such their share of total group assets was relatively small, increasing from around 9% to 15% of the total (Table 5.2). They also, however, appeared to be relatively profitable (share of profits rising from 3% to 11%). The company law also allows for solely state owned limited liability companies to be set up, subject to the government's approval (Zhang 2004). There were 2,241 registered in China's large groups in 2006. Traditional SOEs, however, had become less important to the groups owing to corporatization of SOEs. In 2002, for example, there were 7,234 SOE subsidiaries but only 5,493 in 2006. The SOES share of profits also fell from 30% to 15% (Table 5.2). Clearly, many of these companies have been corporatized and therefore their ownership registration may have changed, which would explain the growth in other categories (such as limited liability companies, for example).

By 2006 the most important type of company among the business groups in terms of assets and profits (not numbers) were limited liability shareholding companies (*youxian ziren gufen gongsi*). Their contribution to the business groups also was growing faster than other types of companies. Their assets, for example, increased from 11.5% in 2002 to 19% of the groups' total assets in 2006, faster than any other type of company. Their profits grew less quickly, from 24% to 27%, but still constituted an important part of the business groups' total profits.

[4]Under this law such companies require a minimum registered capital of 100,000 Rmb. and a minimum of two shareholders.

In terms of numbers, moreover, these companies were far fewer (only 1,882 in 2006, 5% of total) meaning their average asset size was 3.6 billion Rmb, compared with only around 400 million Rmb for the smaller limited liability companies. These joint-stock companies may raise funds through initial public offering and stock market listing. As such they may reflect the extent to which the stock market is being used to raise capital to develop business groups. They are also key to the development of extensive control pyramids in such groups.

Ownership transformation, at least in the simple terms of the registration of corporations, is clearly taking place quickly within these groups. Three main points emerge from Table 5.2. Firstly, subsidiaries are becoming more important in terms of contribution to groups. Secondly, their ownership status is also changing rapidly, introducing more kinds of investors (including possibly business group insiders) as important new owners. Finally, publicly owned shareholding corporations are becoming more important within the groups, which have been raising greater volumes of capital using stock markets. The combined aggregate picture suggests that if pyramids do exist, and corporate governance is weak, the potential opportunities to tunnel from publicly listed firms to other limited liability subsidiaries are likely to be great.

4.2 The largest listed companies, largest shareholding companies and largest groups

The aggregate data does not allow us to ascertain whether pyramids exist. It only includes information on the parent and first-tier business group affiliates. It cannot, however, show whether the listed subsidiary firms are in turn actually owned by other listed parent firms,

either directly or in a chain. Instead it provides a broad picture of the composition by firm type of China's groups at the level of parent and first-tier of subsidiary.

4.2.1 The largest listed firms

As a first stab at discovering whether pyramidal groups exist, we initially followed La Porta et al's (1999) approach. Who are the ultimate owners of China's largest listed firms and are tiers of listed firms involved in China's business groups? This first investigation reveals that most of the largest listed corporations are owned and controlled primarily by SASAC, which is consistent with observations made in other chapters of this volume. Usually only one other 'group corporation' stands in between SASAC and the listed firm, but this is not listed itself. We do not report our results here in detail, but note that they contrast with the findings of La Porta et al (1999). They find that a majority of listed firms are directly or indirectly owned and controlled through other listed firms in their international samples. Part of the reason why pyramids are not identified using this approach is that it traces backwards, vertically up the ownership chain for pyramids, instead of moving down the chain. To date the very largest listed companies may own other listed companies, but are not themselves owned by listed companies. This is illustrated, for example, by the later example of Sinopec Group (shown in Figure 5.2). La Porta *et al's* method was also devised to make international comparisons and as such the sample size for China is small.

4.2.2 The largest shareholding companies

To further our understanding we looked at two more samples of business groups (in total to 91 groups). The first consists of 41 groups with parent companies that are registered as 'shareholding' (*gufen gongsi*) companies from among China's 1,000 largest groups. The

groups in this sample are of different sizes and come from different industries, including: insurance, transportation, pipe manufacture, dairy products, port services, real estate, construction, construction materials, coal and coke production, chemical production (fertilizer, fine chemicals), retail outlets, packaging and steel-smelting. From within this sample, however, we again find only limited evidence of pyramidal groups. Of the 41 group parent companies around one half (18), are indeed listed. From within these, as we move further down to look at the subsidiaries, we find only two examples that meet our criteria based on the definition of La Porta et al (1999) for being pyramidal groups. TCL Group (ranked 66th) is listed on the Shenzhen stock market. It in turn controls two Hong Kong listed subsidiaries, TCL Multimedia Holdings and TCL Communications Holdings. As well as this China International Marine Containers, discussed in more detail shortly, is also identified as a pyramidal group.

4.2.3 The largest 50 business groups

Building from these findings and working on the insight that larger groups have received preferential treatment in listing and have a higher probability of owning listed firms (in part also because of their size) we go on to examine the top 50 groups in their entirety in more detail (using the aforementioned method). Within these larger groups, many ultimately owned by SASAC, we find that pyramids do indeed exist and are more common in this sample. According to our research 18 of the largest 50 business groups in China have already developed pyramidal structures. This includes: Sinopec (1st), Sinochem corporation (7th), Bao Steel Group (8th), Dongfeng Motor Corporation (12th), China State Construction Engineering Corporation (13th), China Minmetals (16th), COSCO (18th), Haier (20th),

Aluminium Corporation of China (21st), China Resources National Corporation (22nd) , China Unicom (25th), China Huaneng Group (26th), CITIC Group (29th), COFCO Group (31st), China National Chemical Corporation (35th), China Shipping Group Company (40th), China Electronics Corporation (41st), China Guodian Group (43rd) and Shanghai Electric Group (47th).[5] Table 5.3 provides further summary details of these pyramidal structures as well as the other groups in the sample. To further illustrate we sketch three examples (Figures 5.1, 5.2 and 5.3).

Our first example has rather textbook like vertical pyramidal features. Shanghai Electric Group operates in ten major industries and has around 92,000 employees (assets of 95.7 billion Rmb). The group has grown quickly (in 2006, for example, it acquired a further seven subsidiaries). The major business areas themselves each consist of separate groups (see Figure 5.1). Among the first-tier of subsidiaries there are three listed first-tier subsidiaries beneath a listed apex company, Shanghai Electric Group Company (listed in Shanghai and Hong Kong).[6] Above this listed firm in turn stands the rather opaque Shanghai Electric (Group) Corporation (an SOE), which is its major shareholder (along with another smaller shareholder, Shenergy Group). Both of these two entities are in turn owned by Shanghai's SASAC. The ownership structure in the group leads to the classic divergence between cash flow and control rights. As of the end of 2006 the listed apex firm had varying ownerships shares in three listed subsidiaries (Shanghai Mechanical & Electrical Industry Co., Ltd. (47%), Shanghai Power Transmission and Distribution Co., Ltd. (84%) and Shanghai Diesel

[5]Note that China National Petroleum Group Corporation, which is discussed in Doug Guthrie, Zhixing Xiao, and Junmin Wang's chapter, is the second largest business group and has 41 subsidiaries, but does not have a pyramidal structure.

[6] About 30% of its investments in subsidiaries were in listed companies according to the annual report (p. 91). This is a proportion rather close to the national average (see Table 5.2).

Engine Co., Ltd. (50%)) which were all listed on the Shanghai Stock Exchange.[7] Shanghai Electric Group's structure, discussed in the next section, has implications for corporate governance. Similarly, in Sinopec Group, Sinopec Ltd, the listed firm and most important first-tier subsidiary, in turn owns and controls numerous other subsidiaries, including Yizheng Chemical Fibre (42%), Sinopec Wuhai Petroleum Group, Deguan Holdings and Sinopec Shanghai Petrochemical Company Limited (55%).

In each of the above examples the pyramidal chains are quite short and the ultimate owner is more easily identified. A final more complex example that we consider is that of China International Marine Containers (CIMC) (Figure 5.3). It is a more interesting example, as it owns a subsidiary group (Raffles Shipyard, based in Singapore, itself with numerous subsidiaries) which in turn is traded on Oslo's OTC market. This in itself does not make CIMC a pyramid. As we trace the ownership backwards, however, towards the ultimate owner of CIMC, we find the major shareholding of CIMC is the listed firm China Merchants Holding International (which owns 23%, directly and indirectly through other subsidiaries).[8] This listed firm is in turn owned by China Merchants Group, in turn owned by SASAC (China Merchants Group itself has around 20 listed subsidiaries, making it rather unique). COSCO, another large group, also owns a significant share in CIMC (Figure 5.3). This makes CIMC part of much larger and complex pyramidal structure, with SASAC at the top as ultimate owner but numerous other listed firms in between.

Pyramidal groups are forming in China – but are they common? Claessens, Djankov, and Lang (2000) have found that the top fifteen family controlled pyramids held corporate assets

[7] During 2006 these subsidiaries converted all unlisted state-owned shares into tradable shares on the stock exchange in accordance with new government regulations, thus allowing a further increase in the divergence between ownership and control stakes should it wish.

[8] And COSCO Pacific (17.5%), another listed company.

worth considerable shares of their GDP: 84% in Hong Kong, 76.2%, in Malaysia, around 50% in Singapore and the Philippines and 40% in Thailand. They argue that '*a relatively small number of families effectively control* [sic] *most East Asian economies*' (quoted in Morck, Wolfenzon and Yeung 2005: 667). In a comparative perspective, therefore, extended hierarchical pyramidal business groups appear to be less common in China. Only 18 of the top 50 groups have pyramidal structures. There is also, most likely, a lower concentration among smaller groups. So within the 3,000 or so officially recognized groups, pyramidal structures involving publicly listed companies are the exception. Our examples, moreover, have found that in most cases the length of chains involved in the pyramids are comparatively short (two in both the Shanghai Electric and Sinopec cases). Longer chains increase differences between cash-flow and ownerships rights, exacerbating corporate governance issues. As many as ten layers existed in some pyramids in the United States in the 1920s, for example, before they were forcibly dismantled (Morck and Nakamura, 2007). The examples of CIMC and COSCO, however, do also illustrate the complexity emerging in some of China's groups. All of the groups, moreover, illustrate the great potential for the further development of pyramids, given their extensive hierarchical ownership chains.

From an international perspective the extent of pyramidal groups appears limited in China. From a domestic perspective, however, their emergence appears quite rapid. Given the short history of China's market economy, SOE transformation, ownership and corporatization reforms and stock market development, the fact we find any pyramids at all might be considered surprising. As they are more prevalent among the very largest state groups, moreover, the power and influence they wield may be greater than the crude numbers alone suggest. On reflection, from one perspective the formation of pyramidal structures appears surprising given it does not appear to have been an explicitly planned outcome of business

group development or the corporatization and public listing process. We can find no explicit mention of such a strategy in policy documents. From another perspective, however, the formation of pyramids appears entirely in keeping and a logical extension of the initial listing process, which maintained controlling stakes for the state in listed firms while leaving minority shareholders with little influence or voice.

5. WHY ARE THERE PYRAMIDS? WHAT ARE THE IMPLICATIONS?

Pyramids 'concentrate a country's corporate decision making in remarkably few hands', magnifying the 'political and economic clout of the controlling shareholder'(Morck, Wolfenzon and Yeung 2005: 666). Could their formation and rapid growth therefore be a co-ordinated and systematically orchestrated plan put in place by the ultimate controlling shareholders – the state/Communist Party? Pyramids facilitate ownership diversification while maintaining control at the apex – in the hands of Party and government officials. This is a desirable option for those accustomed to holding power. As such, pyramidal ownership may provide an ingenious solution for group insiders wishing to socialize the risk of their business group expansion plans. If this is right, such pyramidal structures may also be thought of as a continuation and extension of the original policy of listing companies while maintaining controlling ownership blocks. Minority shareholders remain comparatively unprotected as a result. The state, as owner, therefore, may benefit.

It is also possible, however, that group insiders, including senior managers and political figures, may also derive benefits from the formation of such structures. Some argue that enterprise reforms have also favored firm insiders, at the expense of outsiders (Naughton 2007). Walder (2013), for example, has recently explored the growing power and wealth of

China's managerial elite, many of whom have close links to the Party, from where they are often drawn. He notes that one measure of corporate control, the identity of the single largest shareholder, shows that private control of listed corporations has grown from 6.5 percent in 1999 to 35 percent in 2007 (see Figure 1). (Walder, 2013: 26). He also notes how managers are increasingly building ownership stakes in the businesses they run, and that the 'broader implications of this very different managerial revolution for China's future are obviously very large, yet they have so far gone relatively unexplored' (Walder, 2013: 22). Our later analysis of Shanghai Electric Group also shows how insiders attempted to get control of one of China's largest groups. Lee and Hahn (2004) also show that insider control has become more dominant in business groups in recent years. They go so far as to suggest their formation is a direct result of insiders wishing to tunnel resources to their own private use. Indeed, as noted above, in many instances *de facto* privatization to insiders has already extended into *de jure* privatization through management buy outs (as also noted, there are now 1,000 private business groups in China). Our investigation of China's largest groups shows how opaque 'group corporations' usually exist between the ultimate controlling shareholder and lower tiers of firms (i.e. there is a control chain, see Figures 5.1 and 5.2). It is these group corporations, in reality that determine the overall group strategy (though the exact governance mechanisms are not at all transparent). These pyramidal structures, particularly when combined with the vast sea of other participating member firms (Table 5.2), may therefore provide opportunities for the actual controllers of these groups to expropriate minority shareholders (via, for example, transfer to other limited liability companies they may indirectly have interests in). Alternatively, if not for direct personal gain, the expropriation of minority shareholders at lower tiers of the pyramid may serve the more general targets that these group corporations wish to achieve (i.e. maintaining employment, providing social services and so on). In this sense, as mentioned, the rationale for pyramids

may be no different to some of the more nefarious original rationales for publicly listing firms. Key among these was the raising of capital on highly favorable terms. Pyramidal chains, of course, are even more efficient than the original method, as they increase the divergence between ownership and control. The emergence of pyramids in China, therefore, may also sustain and extend the entrenchment of certain corporate elites – mainly controllers of the non-listed group corporations - looking to enrich themselves personally as well as elevate them politically. In the Chinese case it may well be incumbent managers as opposed to the ultimate controlling shareholders (often SASAC, local and central) that have the greatest incentives to create the pyramidal structures we have described.

These pyramidal structures, of course, also do go some way to appeasing the ultimate controlling shareholders (SASACs) and, ultimately, central policy makers (such as the State Council and related bodies) as well as insiders. This is because, as discussed, pyramids allow groups to expand very quickly with limited capital (as they draw from public investors). Government policy has looked to develop larger internationally competitive groups. This policy, at times, has emphasized size, as opposed to other firm level indicators of success (i.e. good corporate governance). The State Council directives issued in 1991 and 1997, for example, explicitly recognized the need to develop large-scale groups that could reap economies of scale, invest heavily in research and development, undertake overseas investment and ultimately, compete internationally as modern transnational corporations. This policy has accelerated in recent years (Table 5.1, for example, captures the speed of growth among the groups – that in R&D expenditures being especially revealing). In this regard it is also interesting to note that until 2007 dividends from group subsidiaries were not paid to the ultimate controlling shareholders but instead to the parent group companies. This

left these parent companies as ‘cash cows’ with large profits available for reinvestment to further help their expansion. The creation of pyramidal structures also facilitates this rapid expansion as at lower tiers within the pyramid the controlling shareholder commits smaller volumes of capital. Pyramidal structures, therefore, may also be a useful tool for inside controllers of groups to rapidly expand their size, appeasing demands of their ultimate controlling shareholders, while also providing opportunities for personal gain.

5.1 More on tunneling and related transactions

During our investigation of China’s largest groups we were struck by the extent of related party transactions ongoing among parent and subsidiary companies reported in the annual reports of the listed companies we identified in pyramids. To give an impression of how insiders may use pyramidal structures to control group wide resources at the expense of minority shareholders, we can reconsider again the example of Shanghai Electric Group (Figure 5.1). In this group, not unlike many others, there are a considerable number and variety of connected transactions between the state-owned group corporation and listed firms in the lower tiers of the pyramid. There are also managers serving concurrently within different firms (and answerable to different shareholders) within the group. According, for example, to the 2006 annual report of Shanghai Electric Group Company (listed in Hong Kong and Shanghai) these include purchasing agreements, financial services agreements, as well as the purchasing of companies from the SOE parent company Shanghai Electric Group Corporation (hereafter SEGC) (SEGC, 2006: 29-36). This report, for example, notes a ‘framework purchase agreement.’ In this agreement the first-tier listed group company agreed to buy raw materials and component parts from SEGC. In 2006, for example, the

listed group's purchases from SEGC amounted to around 100 million dollars (p. 33). [9] This listed company also entered into financial services agreements with SEGC through Shanghai Electric Group Finance Co., Ltd., a subsidiary and the listed group's finance company. It provides financial services to SEGC. The approved maximum daily balance by this finance company to the parent group stood at a huge 150 million dollars in 2008 (annual report 2008). Loans from listed companies to unlisted group corporations are a recognized problem in China. Our later analysis of a high profile corruption case involving the group shows that the finance company was used to divert internal funds.

As well as financial transactions, a range of asset transfers took place between SEGC and the first-tier listed firm. In 2006, for example, the listed group company acquired a 51% equity interest in a firm belonging to SEGC.[10] In fact, around 40 million dollars of dealings were carried out between the listed company and SEGC in 2006. Although independent valuations of these companies were made, by their very nature such deals are wrought with conflicts of interest. The only real oversight, moreover, was provided by the supervisory committee: 'The Supervisory Committee has monitored the Company's connected transactions and is not aware of any act detrimental to the interests of the Company and shareholders in regard to the connected transactions in the reporting period' (p. 37). Despite these assurances a number of irregularities existed in the governance of Shanghai Electric Group. Most glaring of all it was found by the Chinese stock market regulator that in 2007 the general manager of the second tier listed company (Shanghai Mechanical and Electric, see Figure 5.1) was concurrently the vice president of SEGC (contravening rule 27 of the

[9] It is stated that transacting prices are stipulated 'by the PRC Government (if any);and if there are no such stipulated prices,- prices not exceeding any pricing guidelines or pricing recommendations set by the PRC Government (if any); and if there are no such pricing guidelines or recommendations, - prices not exceeding market' (annual report, p. 32). Clearly these could be open to manipulation and in turn tunnelling through transfer pricing.

company law: ‘a listed company's business shall be completely independent from that of its controlling shareholders’). As the general manager of the second-tier listed arm, this individual was in the ideal position to tunnel resources back to SEGC. Indeed, according to the annual report of Shanghai Mechanical and Electric in 2006, it transferred ownership of one firm back to the parent company (apparently because it was losing money). [11] Being a second-tier listed firm, owned through the listed group company (Figure 5.1), a wider divergence between ownership and control existed and incentives to tunnel from this firm were greater than from the apex firm. Of course, it is also possible to transfer resources to other limited liability companies in the group, in which managers may indirectly have interests. If we return to our earlier aggregate description (Table 5.2) it is fascinating to note just how rapidly limited liability companies have grown within these groups, opening up possibilities for such abuses.

5.2 The Shanghai Electric Group scandal

After discovering that Shanghai Electric Group had pyramidal ownership structures, it was interesting for us to subsequently learn that it was also heavily involved in one of China’s largest corruption scandals, involving among others the now disgraced former mayor of Shanghai and Politburo member, Chen Liangyu. The case is worth elaborating upon here for two reasons. Firstly, it further points towards pyramidal business group formation as being a mechanism to help insiders enrich themselves at the expense of other shareholders. Secondly, and maybe of more importance, the coincidental and fortuitous manner in which the abuses at Shanghai Electric Group were eventually exposed casts interesting further light on the possible extent of abuses within groups in China.

[10] Shanghai Ship-use Crankshaft Co., Ltd. from SE Corporation for RMB 71.4 million. It also acquired Magine Machine Tool Co., Ltd. from SE Corporation for 252.4 million RMB

Firstly, what light does it shed on the extent to which pyramidal business group empires are exploited by insiders and their associates? Shanghai Electric Group is one of Shanghai's (and also China's) largest state controlled groups. During our analysis of its company accounts we were interested to find that one individual, Zhang Rongkun, had come to own almost 10% of Shanghai Electric Group Company Limited (listed in Hong Kong), a key listed company within the group, by 2006 (Figure 5.1). How did one individual come to acquire such astonishing wealth in such a short period of time? This, by all accounts, looked like an example of on-going insider privatisation taking place. Further probing quickly led us to a number of reports linking the shady figure of Zhang Rongkun to Chen Liangyu, the disgraced former mayor of Shanghai, as well as their close involvement in China's 'corruption case of the decade', as reported by China's well known financial paper, *Caijing*. This involved the Shanghai pension fund being misused as well as funds from Shanghai Electric Group as the two main 'platforms' for corruption (see *Cajiing*, 1st April 2008; as well as the online Speical Report on the 'Shanghai Pension Fund Scandal', http://english.caijing.com.cn/english/shanghai/1.shtml, accessed 20th April 2012).

Zhang Rongkun, though originally from a poor family with few connections, quickly became one of China's richest entrepreneurs. He had done so by developing close links to Chen Liangyu and other key government officials in Shanghai, including those working in Shanghai's SASAC (name) and Shanghai Electric Group. Over 30 senior politicians, SOE managers and private businessmen were eventually successfully prosecuted. It is thought Zhang's connections were established over a long period of time, originating however from his work in providing entertainment for clients of an exclusive hotel in Suzhou, a hotel renowned for frequently hosting top government officials. By building up close links with

[11] It transferred 24% shares of Shanghai Yongxin Color Display Tube to SEGC. Yongxin Color Display Tube

government officials, Zhang had managed to build up a significant business empire, involving property, various financial investments in stocks (many with insider knowledge) and ownership and management of toll roads, acquired in dubious circumstances. The extent to which the network of government officials around Zhang in turn benefitted from kick-backs is unknown, though it is speculated a large share of 300 million RMB found in Chen Liangyu's bank account on his arrest had originated from Zhang. Zhang was therefore likely used as an important intermediary by powerful officials to further their own ends.

One of Zhang's most profitable deals involved a private share issue made before the listing of Shanghai Electric Group Company Limited (in Hong Kong). This was undertaken with the help of the group's CEO (Han Guozhang). Chen Liangyu, before becoming mayor of Shanghai, moreover, had also worked for more than a decade in Shanghai Electrical Appliances Corporation. He started as a worker, engineer and then eventually rose to Party secretary of the corporation. Finally, he became party secretary of the First Bureau of Electrical Machinery. It is therefore likely Chen would have had connections to key players in Shanghai Electric Group. Zhang, through this complex network of insiders, including key executives in Shanghai Electric Group, siphoned off huge sums from it, which was replete with cash via the ownership of its three Shanghai listed subsidiaries (Figure 5.1). This was quickly and efficiently achieved by directing funds through its finance company (a number of executives from the finance company were jailed for their role in transferring funds to Zhang, including Cheng Yanmin and Xu Wei, top executives of Shanghai Electric Finance Company Ltd.) to Zhang. The Group had made massive loans to Zhang's investment company, Fuxi Investment, which was also the intermediary company used by Zhang to buy shares in Shanghai Electric Group Company Limited prior to listing. Zhang had therefore borrowed

made a loss of 180 million RMB which would have severely affected investor confidence in the listed arm.

money from Shanghai Electric Group to buy back a significant part of a key listed arm of the group. After listing, its shares rose considerably and Zhang (and his surrounding cronies) booked a large profit.

Why is the story relevant? The scandal at Shanghai Electric Group was clearly quite brazen, allowing one individual with known political connections to gain a huge ownership share in a massive company. This corrupt and illegal deal, moreover, also would have succeeded, had it not been for a much larger political drama that was unfolding around Chen Liangyu at this very time. Chen Liangyu's rapid political ascendancy had been due to his association with the First Bureau of Electrical Machinery of the Shanghai municipal government, which was under the leadership of the Ministry of the Electronic Industry headed by Jiang Zemin in the early 1980s. The First Bureau, as a result, became a source of elite recruitment. It 'formed a powerful network and dominated the top leadership posts of the Shanghai branch of the CCP and Shanghai municipal government' (Li, 2007: 3). A number of its officials moved into the highest echelons of power at the national level. These officials owed their positions to Jiang Zemin. When Hu Jintao rose to power, however, he made extensive efforts to weaken the power base of Jiang Zemin's 'Shanghai clique' (Li, 2007). Ultimately, this is why Chen Liangyu was purged and his corruption exposed, along with that of his supporting cronies.

How many other cases of insider dealing and corruption do officials and their related cronies from business and political circles get away with? It is, of course, impossible to know. But the Shanghai Electric Group story suggests that although, as Fan et al. (2012) have suggested, pyramids might help insulate managers from political interference, they may also incur very significant 'agency costs', as insiders look to benefit from the business empires they influence control over. Such corruption, moreover, as it is often orchestrated by those in very powerful positions that are accountable to very few, is likely only to be exposed in rather

exceptional circumstances. This is arguably the message that can be taken from the Shanghai Electric Group scandal.

5.3 Event study analysis: RPTs and insider control

The above analysis raises the question of whether the type of RPTs within pyramidal groups like Shanghai Electric are in general considered to be 'parasitic' and value destroying by minority shareholders. If so, they may in turn have negative macroeconomic consequences by pushing the cost of capital up and entrenching poor management. Event study analysis is a useful approach that may help us to further explore this question in more detail. The method is commonly used by scholars of finance to analyze the reactions of share prices (*vis a vis* the market trends) to market announcements. Listed companies are therefore used in this type of analysis. Following in broad outline the method used by La Porta *et al*. (1999), introduced earlier, as our last attempt to explore this problem in more detail we undertook an event study of RPTs in listed companies held in pyramids. To do so we used listed corporations of the Shanghai Stock Exchange (hereafter SSE) and gauged the reactions of shareholders to RPTs in listed corporations that were held in pyramidal ownership chains. We used the 10% threshold as that required to lock in control and examined 940 publicly listed firms identified between 2010 and 2011. We looked only at the SSE, mainly because identifying pyramids is a time consuming process and thus we wanted to make the collection procedure manageable. We examined each listed firm using their annual reports. Owing to the aforementioned characteristics of the listing process in China (section 3.2), however, our method is slightly different to that of LaPorta et al. (1999) and also Fan et al. (2012). This is because we trace the ownership chains of the listed companies in both directions (both up and down from the

listed company) to identify whether there may also be other listed firms owned by the listed company.

As pyramids, in theory, provide apex firms with incentives to tunnel resources from lower tier publicly listed firms via related party transactions (RPTs), we estimate the cumulative abnormal returns (CARs) to all listed firms identified as being owned in a pyramidal ownership structure during the announcement period of a RPT with its parent or a controlled subsidiary of the parent (indirect RPTs, table 5.4). Abnormal returns are the differences between a stock's performance and the expected returns over a period of time and cumulative abnormal returns are the sum of all abnormal returns (Brown & Warner, 1985). By examining the CARs to such announcements we can ascertain how pyramids affect daily stock returns and, therefore, the reactions of investors to RPTs pyramids. Negative CAR values indicate a negative market reaction (Table 5.4). Publicly listed firms in China must notify investors of RPTs and release announcements of relevant details to the public press. This therefore is our source of announcement dates. We define the announcement day as [0], and examine the CARs for the windows [-5, 0], [0, +2], [0, +5] and [0, +10] respectively.[12] By using the market-adjusted returns approach, in which abnormal returns are computed as the differences between actual returns and expected returns (Brown & Warner, 1985: 6-7), we estimate the daily abnormal returns with an estimation period of 100 days (from day -105 to day -5 relative to the announcement day). For each RPT, we obtain information on the daily stock returns, event date, transaction content and other relevant information. We use the market returns on the CSI 300 (*China Securities Index*) and HSI (*Hang Seng Index*) as the

[12] In our sample of connected transactions we also find some firms that conduct numerous RPTs on the same event day. In these instances, we count it as one observation. We also exclude any transactions with unclear event dates and those which take place during other potentially confounding events.

benchmarks for A and H shares respectively. Additionally, we test the statistical significance of the aggregate results (CARs for different connected transactions and for different windows), so as to make inferences about the economic significance of the results. We look, for example, at RPTs between publicly listed firms and their parents (direct RPTs) as well as transactions with firms owned by the parent companies (indirect RPTs).

Using this approach, and drawing from the results of our earlier analysis, we identified 108 listed firms in 28 business groups with pyramidal ownership structures at the end of 2011. Of these, 19 groups were ultimately owned by SASAC (State-owned Assets Supervision and Administration Commission of the State Council) and another 4 by local SASACs. In turn 69 of the listed firms held in the groups were ultimately controlled by SASAC and another 14 by local SASACs. There were only 4 private pyramidal business groups with 11 listed companies and 14 further listed firms were owned by various different entities (i.e. Ministry of Finance). From the listed firms in these 28 pyramidal groups we identified RPT announcement filings made to Chinese and Hong Kong stock exchange authorities. For each transaction, we obtained a copy of the filing, describing the transaction amount, content or types, and announcement date which was obtained from *SSE*, *SZSE*, *HKSE*[13], and also '*China Securities Journal*', '*Securities Daily*'. Some of the pyramids have overseas listed firms (especially in Hong Kong, with H-shares) which in turn hold equity in other publicly listed firms in the Chinese stock market. Our final sample of RPTs when taking account of confounding events consisted of 67 filings. To further analyse the sample we decomposed the connected transactions into those between the listed firms and the parent company (direct RPTs), and those indirect RPTs between the firms owned by the parent company. Following Cheung *et al.*'s (2004, 2008) classification of connected transactions

between the listed firms and their corresponding controlling shareholders, we further sub-divided the sample transactions into three categories[14] to see if this could yield any further information:

(i) Assets, including sales of assets or asset swaps between the listed firm and its controlling shareholders;

(ii) Sales and services, including trading of services and goods between the listed firm and its controlling shareholders;

(iii) Cash payments, including loans, cash payments or provision of cash guarantees by the listed firm to its controlling shareholders in the pyramids (Cheung *et al*. 2008).

In Table 5.4 we show market-adjusted average CARs for four different windows around the announcement day [0], namely window [-5, 0], [0, +2], [0, +5] and [0, +10]. It is interesting to note that for the full sample (n=67), RPTS are associated with negative CARs for three of the four periods looked at. Also, there is an increasing intensity in the CARs, showing a deteriorating share price after the event. Negative (but insignificant, except for one of the event windows) and increasing CARs are also observed for firms that conduct asset and service sales. Firms that conduct direct cash payments RPTs see negative and significant results in two of the three windows (-0.58% for days [0, +2], -0.32% for days [0, +5] and -1.02% for days [0, +10]), with an increasing trend between the first and last event window. Interestingly, firms that conduct indirect transaction have a -0.42% reaction in the first event

[13] SSE is short for Shanghai Stock Exchange, SZSE is Shenzhen Stock Exchange, and HKSE is Hong Kong Stock Exchange.

[14] Here we exclude the propping transactions that likely enhance firm value. And as the number of sample connected transactions is not large, we incorporate the transactions related to assets together (Cheung et al.

window (significant at 1%) compared to direct transactions of 1.34% (significant at 10% level). Nevertheless, firms that conduct both of these two type transactions report negative market reactions in the following three windows, with one window for each being significant.

How should these results be interpreted in light of our earlier findings and analysis? Although not all of the results for the sub-samples are significant, there are clear patterns in the trends of the results. For the full sample, as well as the five different sub-samples, the negative reaction of the market intensifies for all of the different types of RPTs after the announcement day. Although the magnitude of CARs is not large (this may also be due to the small number of sample observations) these RPTs appear to destroy shareholder value when directly or indirectly conducting the types of assets, cash payments, sales and service related RPTs already illustrated. This provides some evidence for the tunnelling of resources from lower-tier publicly listed firms upwards within the pyramidal ownership structure in China′s business groups. Furthermore, our earlier argument that the rapid growth of participating member firms may favour insider managers is partly supported by these results, which show that indirect (as opposed to direct) deals to the various peripheral businesses involved with business groups (such as the large sea of limited liability companies already described) are even more damaging than direct transactions (see the bottom two rows of table 5.4). While direct RPTs are hardly beneficial, indirect ones appear to be eyed with even more suspicion by investors, at least in the early stages after the announcement. Finally, it is worth noting that the most damaging form of RPT is that related to assets (-2.85% ten days after announcement). This can be explained by the fact that the average size of asset related

classify these into three categories). Consequently, we only present three kinds of transactions as noting in the research.

RPTs, which are over three times those of all other RPTs (services, cash payments, sales). They therefore have considerable potential to harm minority investors.

Despite these interesting results, we can still only speculate as to the exact reasons for the formation of pyramids in China and the implications of their formation. In other countries, such as Japan's pre-war *zaibatsu* and more recently South Korea's *chaebols*, however, pyramids have allowed groups to grow rapidly, thereby enabling elites to control vast economic empires. In the Chinese variant of state capitalism, pyramids may provide similar opportunities, while allowing insiders to benefit personally at the same time, as the Shanghai Electric Group example suggests. As such, pyramidal structures may ultimately be highly damaging for minority shareholders and investors as a whole. If this is correct, the party-state's rather lax approach to pyramidal groups may lead to more serious problems down the line. Among the more important of these is the increased perception of risk to undertaking investments, which drives up the cost of capital, something that our event study analysis here

supports. Morck et al (2005) further believe that the effects on corporate governance of pyramids "might well be especially injurious in countries that provide public shareholders ineffective legal rights against malfeasance by corporate insiders" (Morck et al 2005: 693). This description would seem to fit China quite well. They further argue that the macroeconomic impact of such pyramids will depend on what their share of national corporate assets is. We know that the share of China's business groups is already large and is growing quickly. This may become a larger issue in years to come.

6. CONCLUSION

We have investigated the extent of pyramidal type business groups in China, as well as speculated as to the reasons behind their formation and some possible implications. These are important questions as business groups, as opposed to freestanding firms, have proliferated. By the end of 2007 there were 2,926 officially recorded large business groups with over 28,000 direct subsidiaries, employing around 30 million people (SSB, 2007). They have grown, on average, at around 20% per year in real terms with regards to a number of indicators, such as assets, profits, and sales, so becoming of ever greater importance to China's state capitalist economy. At the same time subsidiary growth has become a driver behind their expansion, raising the question of how these groups are organized and what types of firms are now participating in them. One question of great relevance concerns whether pyramidal structures, considered by many to have a number of negative traits, are emerging. In reality, most large corporations in the world commonly use pyramidal structures to "amass control over not just a single firm, or even just a few firms, but over large groups of corporations" (Morck, Wolfenzon and Yeung 2005: 659). This is particularly

true of the East Asian economies, where business groups have played a pivotal role in their development. Building on these observations, therefore, we looked to ascertain the extent to which pyramidal structures are emerging among China's large groups.

Five different approaches were used to address this question. We started using aggregate data, showing how subsidiary growth has been an important component of business group development. Corporatization, moreover, has also led to rapid ownership transformation within the groups. A small number of large publicly listed shareholding companies (less than 2,000) have also now grown within the groups, surrounded by many thousands more smaller limited liability private companies, as many smaller state owned enterprises have been corporatized and privatized. From among the largest 1,000 groups several samples were then used to identify whether individual groups had pyramidal structures. We focused, in particular, on the 50 largest groups in China. In total 18 pyramidal groups, a not insignificant number given the short history of group and stock market development in China, had formed. Several examples were used to illustrate the nature of these pyramidal structures.

Explaining why such group structures are emerging is not straightforward. Our case by case investigation of China's largest 50 groups points towards some possible explanations. It is possible that the withdrawal of the state's role to that of shareholder has opened the door to insider control. The formation of pyramids, therefore, may not be directly driven by the ultimate controlling shareholders, as it has been in other nations and at other periods of history, though it may also be looked upon positively by them. This is because it allows the groups to quickly grow in size by drawing ever greater volumes of capital from public investors (reflected in our aggregate data). The creation of larger corporate empires meets the

aspirations and vision of the ultimate shareholders (local and central SASACs). As noted, these owners (and policy-makers) ultimately hope to transform their groups into international competitors, which many equate with size alone. Pyramidal groups allow them to raise capital to fund new subsidiaries without forsaking control and may, therefore, help insiders meet these objectives. At the same time, the complex structure of these pyramidal groups may also help facilitate tunneling for direct private benefit to insiders. This is now far easier to accomplish given the transformation of other participating business group firms – the thousands of subsidiaries involved in related transactions – into limited liability firms through management buyouts and other mechanisms.

Barry Naughton has observed that "The challenge to corporate governance in China is less individual corruption, and more the danger *that large and interconnected groups of insiders* will divert resources from the broader public interest to their collective and institutional interest" (Naughton 2007: 323) (emphasis added). The pyramidal group structures we have described seem to fit this description well. While it may be coincidental that one of our groups was associated with one of China's largest corruption scandals, it cannot be ruled out that the current transformation of China's business groups, particularly the rapid corporatization and ownership diversification, is being driven by firm insiders. A striking feature of the groups we investigated were the significant number of mechanisms and high volume of transactions between related parties taking place within them. Such transactions may be undertaken for the wider benefit of the group (i.e. for all firms within the group, subsidizing certain loss making subsidiaries for the overall benefit of the group) but also may provide opportunities for private benefit. It may still be too early to say exactly why pyramids are forming. It is interesting and perhaps also revealing, however, to note that there is only limited discussion of these structures among policy-makers to date.

What are the implications of these groups for state capitalism in China? Pyramidal ownership structures seem to evolve organically in most economies as there are strong incentives for elites to create them, even if these are not always to the benefit of minority shareholders. Even by the late 19th century pyramids existed in the United States, Canada, Europe and elsewhere. By the 1920s, 'they were a preferred structure for big businesses throughout the world' (Morck and Nakamura 2007). The dismantling of business groups required concerted efforts on the part of regulators. In the U.S., after the Great Depression, for example, inter-corporate dividend taxes were introduced which led to their break up. In the U.K. more stringent stock market listing rules were introduced in the 1970s, with similar results (Morck 2007). In East Asia, Japan's *zaibatsu* were restructured in the aftermath of the second-world war. More recently, South Korea's *chaebols* and their pyramidal structures have been radically restructured in response to the Asian financial crisis and the perceived harmful role of these groups. If current trends towards pyramidal ownership structures continue, China may face similar problems down the line. At the very least, greater awareness and discussion of the possible problems such groups may pose, which has been very limited to date, is required.

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Legends

Figure 5.1 Shanghai Electric Group. Companies in bold discussed in text. (Source: annual reports).

Figure 5.2 Sinopec Group. (Source: annual reports).

Figure 5.3 COSCO, CMG and CIMC Groups.

Table 5.1: Growth of China's big business groups

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	yoy Average growth rate (1998-07)
Total number of groups	2,369	2,472	2,757	2,655	2,710	2,627	2,692	2,764	2,845	2,856	2926	
Number of state owned groups	1,455	1,667	1,808	1,735	1,786	1,684	1,619	1,546	1,446	1,364	1315	
Number of trial groups	119	121	126	119	119	116	113	168	148	137	334	
Number of private groups	…	…	…	…	…	…	…	…	…	1,089	1212	
Number of employees (million)	18.5	20.9	23.4	22.8	25.2	25.2	25.9	26.7	28.3	30.1	32.4	5.9%
Total Assets	5,035	6,699	8,732	10,698	12,805	14,254	17,017	19,478	23,076	27,121	34,355	21.3%
Total R&D expenditures	15.5	21.4	35.5	48	66.9	80.7	90.5	119.9	150.5	205.5	251.9	32.8%
Total profits	122	109	172	290	321	418	555	829	1,039	1,308	**1,881**	33.4%
Profits/GDP %	1.5	1.3	1.9	2.9	2.9	3.5	4.1	5.2	5.7	6.2	7.5	18.9%
Total OFDI	-	-	-	-	-	-	17.4	23.2	25.8	30.4	69.5	152.0%
OFDI groups/nation	-	-	-	-	-	-	73.8	51.0	25.7	21.6	34	-10%
Total Exports	258	269	359	458	540	629	754	999	1180	1474	1707.4	21.1%
Groups exports/ national exports (%)	17	17.6	22.2	22.2	24.5	23.3	20.8	20.3	18.8	19	18.3	1.2%

Sources: SSB (2008), China's Large Enterprise Group Yearbook (2003 to 2007).
Notes: all units in billions of Yuan at current prices. Foreign exchange rate is of the average of each year when calculating the percentages of groups' OFDI in the nation's total.

Table 5.2: Contribution of subsidiaries to China's business groups by ownership registration (numbers, assets and profits in 100 million Rmb)

	NUMBERS			ASSETS			PROFITs		
Panel A	2002	2006	Change (%)	2002	2006	Change (%)	2002	2006	Change (%)
SOEs	7234	5493	-24.1	43529	63369	45.6	4367	2928	-33.0
Solely state-owned limited liability companies	2281	2241	-1.8	14207	32351	127.7	150	2022	1248.0
Other limited liability companies	9060	14011	54.6	17858	53403	199.0	408	2148	426.5
Limited shareholding companies	1618	1882	16.3	21994	67627	207.5	3411	5338	56.5
Foreign joint ventures	1338	1597	19.4	1302	9640	640.4	268	720	168.7
Foreign funded shareholding companies (excluding HK, Taiwan and Macao)	…	361	…	….	1978	…	…	129	
HK, Taiwan, Macao joint venture companies	719	897	24.8	502	7249	1344.0	87	6.22	-92.9
HK, Taiwan, Macao funded shareholding companies	…	57		…	166				
Other	2266	1411	-37.7	4091	3377	-17.5	224	133	-40.6
Total for all subsidiaries	24523	27950	14.0	106610	239160	124.3	8915	13424	50.6
Total for parent companies	2627	2856	8.7	84392	122613	45.3	5353	6099	13.9
Total	27150	30806	13.5	191002	361773	89.4	14268	19523	36.8
Panel B	**Shares (%) of total**								
SOEs	26.6	17.8		22.8	17.5		30.6	15.0	
Solely state-owned limited liability companies	8.4	7.3		7.4	8.9		1.1	10.4	
Other limited liability companies	33.4	45.5		9.3	14.8		2.9	11.0	
Limited shareholding companies	6.0	6.1		11.5	18.7		23.9	27.3	
Foreign joint venture	4.9	5.2		0.7	2.7		1.9	3.7	
Foreign funded joint stock companies (excluding HK, Taiwan and Macao)	0.0	1.2		0.0	0.5		0.0	0.7	
Hong Kong, Taiwan, Macao joint venture companies	2.6	2.9		0.3	2.0		0.6	0.0	
HK, Taiwan, Macao funded shareholding companies	0.0	0.2		0.0	0.0		0.0	0.0	
Other	8.3	4.6		2.1	0.9		1.6	0.7	
Total for all subsidiaries	90.3	90.7		55.8	66.1		62.5	68.8	
Total for parent companies	9.7	9.3		44.2	33.9		37.5	31.2	
Total	100.0	100.0		100.0	100.0		100.0	100.0	

Sources: SSB (2003-2007).

Notes: the shares show the percentage of the national business group total (i.e. including parent and first-tier subsidiaries).

Table 5.3: Investigating pyramids in China's 50 largest business groups (based on annual income 2006).

Name of Group Company and ranking.	Ultimate owner	Number of subsidiaries in the 1st tier	Listed subsidiaries (in the first tier)	Pyramidal structure? Number of listed subsidiaries of listed subsidiaries	Additional notes on group, including examples of where the pyramidal ownership chain is located within the group.
1. Sinopec (China Petrochemical Corporation)(**中国石油化工集**团公司)	SASAC	See figure 3	1	Pyramid 4	http://english.sinopecgroup.com/company/11.shtml Main Business: oil and gas operations.See figure 3 for more details of structure. Sinopec Ltd. has controlling shares in numerous other listed companies (Yizheng Chemical Fibre Co. Ltd, for example).
2 China National Petroleum Group Corporation, (**中国石油天然气集**团公司)	SASAC	At least 41 subsidiaries	1	No pyramid	http://www.cnpc.com.cn/CNPC/default.htm. May have some voting shares in other listed firms, but not yet evidence of controlling stakes.
3 . State Grid Corporation **国家**电网公司	SASAC	At least 25 subsidiaries	1	No pyramid	http://www.sgcc.com.cn/gsjs/gsjj/default.shtml/ One of the largest public sector companies in the world. No listed subsidiaries of listed subsidiaries.
4 China Mobile Group |Co. **中国移**动通信集团公司	SASAC	Around 30	1	No pyramid	www.chinamobile.com/. It incorporated China Mobile Group (Hong Kong) which owns the listed company China mobile Hong Kong Ltd (76%). In turn this owns 31 subsidiaries on the mainland and also 66% of Aspire Holdings Limited, a company incorporated in the Cayman Islands (not listed). China Mobile Limited is an investment holding company controlled by the Chinese mainland based company China Mobile Corporation.
5.China Southern Power Grid **中国南方**电网有限公司	SASAC	7 wholly owned subsidiaries,3 branches, 1 stock holding company	No	No pyramid	http://www.csg.cn// China Southern Power Grid Co., Ltd. Is one of two state-owned power grid companies in China. CSG invests, constructs and operates the power networks in Guangdong, Guangxi, Yunnan, Guizhou and Hainan provinces and regions where 230 million people benefit from its power supply services. CSG ranks at around 240 among the *Fortune Top 500 Corporations*. It also has business in property insurance Dinghe property insurance co.
6. China Telecom Group Co. **中国**电信集团公司	SASAC	28 wholly owned subsidiaries.	1 listed	No pyramid	http://www.chinatelecom.com.cn/corp/zzjgcs/index.html 71% of China Telecom Hong Kong is owned by the group. The group includes one holding company, 9 branches and 4 holding subsidiaries.
7. Sinochem Corporation **中国中化集**团公司	SASAC	Not clear.	3	Pyramid	http://www.sinochem.com/tabid/63/Default.aspx. Ranking around 250 in the Fortune 500, it is involved in agriculture, energy, chemicals, finance and real estate. There are at least 3 first tier listed companies (Sinochem Internationa, Sinofert and Fanshion Property. Sinochem International has voting shares in other listed companies in excess of 10%, meeting La Porta's (1999) definition.

8 . Bao Steel Group 宝钢集团有限公司	SASAC	14	5	Pyramid At least 1	http://www.baosteel.com/group/ Baosteel Group Corporation is the parent company of BaoSteel Ltd (listed) which owns 55% of Baosight, also listed.
9. China Railway Engineering Group 中国铁路工程总公司	SASAC	Not clear.	No information	No information	http://www.crecg.com/
10. China FAW Group 中国第一汽车集团公司	SASAC	27 wholly owned subsidiaries	4	No pyramid	http://www.faw.com.cn/index.jsp. FAW has27 wholly owned subsidiaries and controlling interests in 20 partially owned subsidiaries. Among these are FAW Jiefang Truck Co. Ltd. and Faw Automobile Parts Co. Ltd., which are wholly owned subsidiaries; FAW Car Co. Ltd., Tianjin FAW Xiali Automobile Co. Ltd., and Changchun FAW Sihuan Automobile Co. Ltd., whose shares are traded on the stock exchange, and FAW-Volkswagen Automobile Co. Ltd. and Tianjin FAW Toyota Motor Co. Ltd., both of which are Sino-foreign joint ventures.
11. China Railway Construction Corporation 中国铁道建筑总公司	SASAC	22 subsidiaries	No information	No information	http://www.crccg.com/
12. DongFeng Motor Corporation 东风汽车公司	SASAC	>15 subsidiaries	1	Pyramid	http://www.dfmc.com.cn/main_en.aspx. Dongfeng Motor Corporation was first established in 1969 and commands a leading position in the PRC automotive industry. DongFeng Motor Ltd has voting shares greater than 10% in other listed firms.
13. China State Construction Engineering Corporation 中国建筑工程总公司	SASAC	21 domestic 16 abroad	**2**	Pyramid	http://www.cscec.com.cn/The largest construction conglomerate in China..China Overseas Group Holding Ltd)is listed in Hong Kong. China Overseas Land & Investment Ltd ("COLI" or the "Company"), a Hong Kong listed subsidiary, controls China State Construction International Holdings Limited, also listed on Hong Kong.
14. Shanghai Automobile Industry Group Co. 上海汽车工业集团总公司	Shanghai SASAC	Not clear	1	No pyramid	http://www.saicgroup.com/chinese/index.shtml The parent company owns various listed subsidiaries, but we cannot identify any pyramidal ownership structures beneath these listed firms.
15. Legend Holdings 联想控股有限公司	中科院	5	2	No pyramid	http://www.legendholdings.com.cn/ listed companies include Legend Group and Digital China Holdings Limited.
16. China Minmetals 中国五矿集团	SASAC	37 in China, numerous overseas branches	1	Pyramid	www.minmetals.com.cn/ China Minmetals Corporation was founded in 1950 and is a large sized group dealing worldwide in development, production, trading and operations for metals and minerals. Minmentals Development Co. LtD (listed) owns shares in excess of 10% in other listed companies.

17. The China National Offshore Oil Corporation **中国海洋石油**总公司	SASAC	26	4	Not clear	www.cnooc.com.cn/4 listed companies in group (two listed subisidiaries in HK). The China National Offshore Oil Corporation (CNOOC) is one of the largest state-owned oil giants, as well as the largest offshore oil and gas producer.
18. COSCO Group **中国**远洋运输集团	SASAC	Not clear	6	Pyramid See figure	http://www.cosco.com/en/about/index.jsp?leftnav=/1/1 China Ocean Shipping (Group) Company (COSCO) specializes in shipping and modern logistics, serving as a shipping agency and providing services in freight forwarding, shipbuilding, shiprepairing, terminal operation, trade, financing and real estate.
19. China Communications Construction Company Ltd **中国交通建**设集团有限公司	SASAC	41 subsidiaries	No	Pyramid 2	http://www.ccccltd.cn/ The listed subsidiary has interests in two further listed subsidiaries. It holds about 25% directly and 18.32% indirectly in Shanghai Zhenhua Port Machinery Co., Ltd. (manufacturing of port machinery) as well as 61% directly in CRBC International Co., Ltd. (infrastructure construction) (p.161. 2007 annual report).
20. Haier Group **海**尔集团	Local government/ employees (similar to Legend)	Around 240	1	Pyramid 1	www.haier.cn/ Haier Electronics Group Co., Ltd. (listed in Hong Kong) and Qingdao Haier Co., Ltd. (isted in Shanghai). Haier Group Corporation owns 20% of Qingdao Haier directly and another 23% of this company through another controlled company. In 2008 Qingdao Haier Co., Ltd. (SHSE: 600690) entered into an agreement to acquire a 21.12% stake in Haier Electronics Group Co., Ltd. (SEHK: 1169) from Deutsche Bank.
21. Aluminum Corp of China **中国**铝业公司	SASAC	38	Numerous	Pyramid 3 in Chalco alone	www.chinalco.com.cn/ Chinalco is a massive aluminum based conglomerate, it owns three group companies Chalco, itself a listed group itself owns investments in Shandong Aluminium Industry Co. Ltd (71%), Lanzhou Aluminum Corporation Ltd. (28%) and Jiaozuo Wanfang (30%) (A shares listed in Shanghai), making this a pyramid.
22 China Resources National Corporation **中国**华润总公司	SASAC	20 plus	Yes	Pyramid 1 (at least)	http://www.cre.com.hk/A diversified group. There is a listed subsidiary in Hong Kong. The parent company owns 51% of this. It in turn has many subsidiaries. China Resources Jinhua Co., Ltd., for example, is a listed company on the Shenzhen Stock Exchange. This company is one of the largest yarns suppliers and garment manufacturers on the Chinese Mainland.
23 China Netcom **中国网**络通信集团公司	No	1	1	No pyramid	www.chinanetcom.com.cn/ Second largest fixed line operator. The parent company is listed on the Hong Kong and New York stock exchanges. A relatively straightforward structure with numerous wholly owned subsidiaries. Does not appear to own any other listed companies.
24. China Metallurgical Group Corporation	SASAC	61	1	No Pyramid	http://www.mcc.com.cn/english/ShowArticle.asp?ArticleID=241 China Metallurgical Group Corporation is engaged in engineering, procurement and

中国冶金科工集团公司					construction), natural resources exploitation, papermaking business, equipment fabrication, real estate development. It has listed subsidiaries (CISDI).
25. China Unicom **中国**联合通信有限公司	SASAC	Numbers unclear	1	Pyramid	http://www.chinaunicom-a.com/about/index.html See China Unicom Holding Ltd.
26. China Huaneng **中国**华能集团	SASAC	23	1	Pyramid	www.chng.com.cn/ SEG is a listed company (www.sec.com.cn) in turn part owned by Huaneng International Power (listed part of Huaneng Group).
27. Shenhua Group Corporation Limited **神**华集团有限责任公司	SASAC	32	1	No pyramid	www.shenhuagroup.com.cn/ Shenhua Group is a diversified energy enterprise with major businesses concentrating on coal production, sales, electricity & thermal generation, coal liquefaction & coal chemicals, railway and port transportation. The primary listed entity within the first tier (HK) owns no other listed subsidiaries (see 2007 annual report). There do not appear to be any other listed arms.
28. Ping An Insurance **中国平安保**险（集团）股份有限公司	….	8	None.	No pyramid	www.pingan.com.cn Shenzhen based, parent company listed in Hong Kong. Relatively simple corporate structure. No apparent pyramid.
29. CITIC Group **中国中信集**团公司	Possibly Ministry of Finance	44	6	Pyramid	www.citic.com/. Includes numerous listed companies including: CITIC Pacific Limited., CITIC Guoan Information Industry Co., ltd. CITIC Offshore Helicopter Co.Ltd.., CITIC Resources Holdings Limited, CITIC 21CN Company Limited, Asia Satellite Telecommunications Company Limited . Not owned by SASAC. China CITIC Bank, listed in Hong, is 15% owned by China International Financial Holdings (listed in Hong Kong).
30. Zhongguo Xinjian Jituan **中国新建集**团	SASAC	No info	No information.	No information.	http://www.chinafarm.com.cn/
31. COFCO Group Ltd **中粮集**团有限公司	SASAC	14+6 listed	6	Not clear	http://www.cofco.com.cn/cn/about_cofco/general_situation.aspx There are two companies listed in Hong Kong and several others elsewhere. It is not clear whether the mainland listed companies are owned by the parent or through the subsidiaries in Hong Kong.
32. Guangzhou Auto Industry Group Co. **广州汽**车工业集团有限公司	Guangzhou SASAC	4	1	No pyramid	http://www.gaig.com.cn/pub/showArchive.jsp?catid=28|29 Comparatively straightforward group structure, no pyramid.
33. China Datang Group Co **中国大唐集**团公司	SASAC	26	1	No pyramid	http://www.china-cdt.com/ One of five large-scaled power generation enterprises, established with assets offormer State Power Corporation of China. Directly managed by the CPC Central Committee and is an experimental state-authorized

					investment and state share-holding enterprise ratified by the State Council.
34. Anshan Iron and Steel Group Co. **鞍山**钢铁集团公司	SASAC	4 controlled subsidiaries	1	No pyramid	http://ansteel.com.cn/Ansteel has mining, milling, iron-making, steel-making to steel rolling, and a large scale iron and steel enterprise group.
35. China National Chemical Corporation **中国化工集**团公司	SASAC	Owns numerous groups	At least 13	Pyramid	www.chemchina.com.cnA large-scale state-owned group company approved by the State Council on the basis of China National Bluestar (Group) Corporation, China National Haohua Chemical (Group) Corporation and other companies affiliated with the former Ministry of Chemical Industry.
37. Bailian Group Co. **百**联集团有限公司	Possibly local government	Not clear	1	No pyramid	www.bailiangroup.com It has a listed subsidiary in Hong Kong which owns numerous other private companies.
37. China Railway Materials Commercial Corporation **中国**铁路物资总公司	SASAC	Numerous	No	No pyramid	http://www.crmsc.com.cn/ A trading and logistics group targeting materials for the transportation and construction of the railway system, including rails, wheels, wheel hubs, machinery and electronic equipment, locomotive and rolling stock spare parts, steels, cement, and woods. Its minor business includes large scale storehouses, distribution and real estate.
38. Shougang Group **首**钢集团	Beijing SASAC	42	1	No pyramid	http://www.shougang.com.cn/main.html Large integrated iron and steel works. One listed subsidiary.
39. Suning electronics 苏宁电器集团 (listed)	Private	…	No	No pyramid	www.cnsuning.com/A leader in retailing consumer appliances. Listed in 2004 on the Shenzhen stock exchange. Encouraged by China's leaders to be China's Walmart. Private firm, origins not in the state economy.
40. China Shipping Group Company **中国海运集**团公司总公司	SASAC	31	3	Pyramid	http://222.66.158.218/b-1.asp Founded in 1997 in shanghai as one of the key state-owned enterprises under the direct administration of the Central Government, a super-large shipping conglomerate that operates across different regions and countries with five specialized fleets. China Shipping Container Lines (listed Shanghai, HK) is controlled by China Shipping Development (listed Hong Kong).
41. China Electronics Corporation **中国**电子信息产业集团公司	SASAC	61 13 listed holding companies	13 listed in group	Not clear, but probably a pyramid.	http://www1.cec.com.cn/ China Electronics Corporation (CEC) is a key state-owned conglomerates directly under the administration of central government, and the largest state-owned IT company in China. It was established in 1989 and originated from the former Ministry of Electronics Industry as a result of government restructuring. Currently controls 61subsidiaries, including 13 listed holding companies. It is acomplex amalgamation of groups.
42. Sinosteel	SASAC	76	At least 2	No pyramid	www.sinosteel.comFormerly China Iron & Steel Trade & Industry Group, Sinosteel

中国中钢集团公司					includes 76 subsidiaries. It was separated from the State Administration of Metallurgical Industry and was put under the administration of the Central Government in 1999.Sinosteel Anhui Tianyuan Tech. Co., Ltd. and Sinosteel Jilin Carbon Co., Ltd. are listed (Shenzhen).
43. China Guodian Group 中国国电集团公司	SASAC	100 +	2	Pyramid	www.cgdc.com.cn/China Guodian Corporation, established in 2002 with the approval of the State Council in the restructuring process of China's power industry. One of the five largest national power groups. A pilot state holding enterprise approved by the State council to carry out the state-authorized investment, it has voting shares>10% in other listed companies (GD Power Development Co.,Ltd., for example).
44 . Jiangsu Shagang Group 江苏沙钢集团公司有限公司	Private	5 +	No	No Pyramid	http://www.sha-steel.com/docc/about/fengongsi.aspxIn operation since 1975. By 2006 ranked fourth among iron and steel producers in China (by output volume). Recently involved in possible tie up with Baosteel Group. Restricted in listing opportunities, illustrating the potential barriers to forming pyramids for private companies.
45. Beijing Auto Group 北京汽车工业控股有限责任公司	Not clear	3+	No	No pyramid	http://www.bj-auto.com/Beijing Auto Group consists of three auto making companies: Beiqi Foton, Beijing Hyundai and Beijing-Benz-Daimlerchrysler. The parent holding company has only recently made plans tolist itself.
46. CNAF 中国航空油料集团公司	Yes SASAC	10 holding companies, 7 wholly owned subsidiaries	1 at least	No pyramid	www.cnaf.com/Established in 2002, China National Aviation Fuel Group Corporation ("CNAF") is a large state-owned air transportation logistics service provider. CNAF integrates the procurement, storage, sales of jet fuel and into-plane services. It has a jet fuel sales network across the country and a complete distribution system. CNAF owns 15 dedicated discharge ports, near 1000km pipelines and about one-hundred-kilometer dedicated railways. Listed company in Singapore. Yet to develop pyramid.
47.Shanghai Electric Group 上海电气集团公司	Yes	42	4 in total	Pyramid (see figure 1).	http://www.chinasec.com/en/Shanghai Electric Group has subsidiaries operating in 10 industries, including power generation, transmission and distribution, electromechanical integration equipment, transport equipment, and environmental protection. http://www.chinasec.cn/enweb/index.asp. Shanghai Electric Heavy Industry Group also belongs to Shanghai Electric Group. The heavy industry group has a number of subsidiaries, including a Hong Kong listed company.
48. China Huadian Corporation 中国华电集团公司	SASAC	60+	At least 5 listed companies	Not clear, probably	http://eng.chd.com.cn/channel.do?cmd=show&id=475 China Huadian Corporation is a wholly state-owned enterprise approved by the State Council and established on the basis of a sum of enterprises and institutions formerly owned by State Power Corporation of China. It is a pilot entity approved by the State Council to conduct state-authorized investment. CHD has controlling shares in a number of listed companies (Huadian Power International Co., Ltd, Huadian Power Co., Ltd, State Power Nanjing Automation Co., Ltd. and Guizhou Qianyuan Power Co., Ltd., Yunnan Jinsha River Middle Reaches Hydropower Development Co., Ltd).

					List: http://eng.chd.com.cn/channel.do?cmd=show&id=482
49. Wisco 武汉钢铁集团公司 Wuhan Gangtie (Jituan) Gongsi,	Not clear.	20 plus	Yes	No pyramid	http://www.wisco.com.cn/wisco_en/brief/aboutus.shtmlWuhan Iron and Steel (Group) Corporation (WISCO)a backbone enterprise under the leadership of the Central Government and the State Council. It has 84,000 employees in its headquarters, among which, 18,900 are involved in main steel business. The group corporation now has 20 wholly-owned affiliated companies, 7 share-holding companies, 4 branch companies, 2 factories directly under WISCO's leadership, 2 collectively-owned enterprises, 1 listed share holding company, i.e. Wuhan Iron and Steel (Group) Corporation, limited, 12 wholly-owned companies entrusted to a second level companies for the management, and 11 share-holding companies.
50. TISCO, Taiyuan Iron and Steel (Group) Company Ltd. 太原钢铁集团	Local government or local SASAC	Unspecified	No	No pyramid	http://www.tisco.com.cn/Ecp1.htm Taiyuan Iron & Steel (Group) Co., Ltd. (TISCO) is a super-large iron and steel complex. TISCO technology center ranked 11th among 332 enterprise-based technology centers accredited by the state in 2005. Its target is to make the world top 500.

Table 5.4

	CAR (-5, 0) (%)	CAR (0, +2) (%)	CAR (0, +5) (%)	CAR (0, +10) (%)
Ⅰ. All individual types of transactions within the pyramids				
(1) All connected-transactions (N=67)	-0.13	-1.14	-1.52	-2.02
	[0.0002]***	[0.0069]***	[0.3218]	[0.0989]*
(2) Assets (N=13)	-0.89	-1.88	-2.77	-2.85
	[0.1893]	[0.6545]	[0.2146]	[0.0650]*
(3) Services and sales (N=44)	0.15	-1.05	-1.42	-2.00
	[0.0062]***	[0.1230]	[0.2464]	[0.3237]
(4) Cash payments (N=10)	-0.39	-0.58	-0.32	-1.02
	[0.0156]**	[0.0596]*	[0.9524]	[0.1314]
Ⅱ. Transactions classified according to direct or indirect transaction to the apex firm in the pyramid				
(1) Direct connected-transactions (N=11)	1.34	-0.27	-0.96	-1.30
	[0.0704]*	[0.4497]	[0.7380]	[0.0079]***
(2) Indirect connected-transactions (N=56)	-0.42	-1.31	-1.63	-2.16
	[0.0012]***	[0.0573]*	[0.3452]	[0.8940]

Source: Relevant annual reports and other details are obtained from SSE, SZSE, HKE, and also ‘China Securities Journal’, ‘Securities Daily’. *, **, *** denotes statistical significance level at 10%, 5%, and 1% respectively.